

**Monthly Progress Report**  
**Corrective Measures Study (CMS) for Potential Release Site (PRS) 16-021(c)**  
**April 2002**

This report summarizes Los Alamos National Laboratory (LANL) activities completed during April of fiscal year (FY) 2002 on the CMS for PRS 16-021(c), the 260 outfall. Both the activities described in the CMS plan ([LA-UR-98-3918]), which was submitted to the New Mexico Environment Department-Hazardous Waste Bureau [NMED-HWB] on 9/30/98, and approved by NMED-HWB on 9/8/99), and other related activities are described herein.

**Description of Activities and Contacts**

**High Performing Team (HPT) Activities** – The 260 HPT met on April 22, 2002. Topics discussed included: 1) an update on ongoing TA-16-260 CMS activities; 2) a discussion of IM Report format issues; 3) a discussion of upcoming stabilization studies; and 4) an update on Ecorisk.

The status of the CdV-R-37-2 well, the Interim Measure, CMS investigations, and the CMS sampling were updated (see detailed discussion in the March CMS Progress Report and below).

LANL raised several questions concerning the IM Report: 1) It was agreed that the data for the hot spots that were removed in 2001 could be discussed in the field activities section and that the final data summary would focus on the contaminants that remain in the ground; 2) It was agreed that nature and extent of contamination would be discussed in the context of the conceptual models. The decreasing trends in contaminant concentration that existed prior to the IM no longer exist; rather ‘hot spots’ of elevated contamination remain; 3) It was agreed that LANL will explicitly address deviations from the IM Plan in a table in a new section (4.6).

LANL provided a draft letter on a treatability study focusing on barium stabilization. NMED representatives did not express any concerns with the letter.

LANL provide an update on the ecorisk pilot. It was noted that the aquatic toxicity testing had found elevated toxicity to aquatic invertebrates in the locale nearest the 260 outfall, which was located in the SWSC cut, but not in the two downgradient sampling locales, which were located upstream and downstream of MDA-P. LANL noted that they planned on resampling that locale to determine whether the toxicity was due to the sediments or due to the waters. LANL noted that the Fall rodent population studies had not shown significant impacts on populations relative to the populations in the reference canyon. However, LANL also noted that the data quality for the body burden analyses from that sampling round was poor and requested that they be allowed to discard that data and resample using an improved digestion procedure. NMED did not express any concerns

with this strategy. NMED requested to see the ecological data in more detail prior to the next ecorisk HPT discussions.

The next HPT meeting is scheduled for May 20, 2002. Agenda items may include ecorisk results, a data update, the IM Report, and a discussion of potential impacts of the corrective action order on the 260 CMS.

***RCRA Facility Investigation (RFI) Report and CMS Plan***– No new activities occurred during this reporting period.

***Best Management Practices (BMPs)***– BMPs are inspected quarterly and following significant precipitation events. Due to low levels of precipitation in April, no BMP repairs were required.

***CMS Hydrogeologic Investigations***–CMS hydrogeologic investigations include ongoing Phase II RFI sampling as well as continuing investigations outlined in the CMS plan.

The ongoing Phase II RFI sampling program includes collecting samples at Martin and Burning Ground spring every other day for stable isotopes. SWSC spring remains dry.

The wells, both alluvial and deep, were checked for both presence and level of water. Four out of five alluvial wells in Canon de Valle contained water, the uppermost well was dry. No water was present in all three alluvial wells in Martin Spring Canyon. All of the intermediate depth boreholes were dry.

No samples from precipitation events were collected and archived for analysis during this reporting period.

Quarterly sampling was completed at the CdV-R-15-3 and CdV-R-37-2 wells. All of the vadose zone screens remain dry.

For well CdV-R-37-2, work was continued on the Well Completion Report.

### ***Ecological Risk Pilot***–

Laboratories that could provide microwave digestion of rodents were investigated. Work was initiated on consolidating the aquatic and terrestrial system study and implementation plans.

***CMS Bench and Pilot Studies***–Bench and pilot studies continued in collaboration with the Innovative Treatment Remediation Demonstration (ITRD) Program. The ITRD HE program is focused on two DOE sites: LANL and Pantex. Studies include:

1. A study of the passive barrier technology of Stormwater Management, Inc., which is potentially useful for removing HE and barium from waters.

2. A study of chemical treatment of HE-contaminated soil using zero-valent iron (ZVI). The LANL portion of this study has been completed.
3. At Pantex, a study of in situ anaerobic bioremediation of HE using gas-phase carbon additions.
4. A study of ex situ anaerobic bioremediation of HE-contaminated soils using the W. R. Grace process, which combines anaerobic bioremediation with a ZVI treatment. The LANL portion of this study has been completed.
5. A study of HE composting. Amendments appropriate to northern New Mexico were tested on both clean and contaminated soils. The LANL portion of this study has been completed.
6. A study of immobilization of barium-contaminated sediments from Cañon de Valle. A preliminary study has been completed and further investigations are planned for FY 02.
7. Phytoremediation studies in Cañon de Valle. Native plants are being evaluated for their ability to remove HE from surface waters. Preliminary results suggest that low levels of phytoremediation are occurring in the Burning Ground spring area.
8. Oxidation, reduction, and in-situ bioremediation studies of groundwater contamination at Pantex.

The HEPS field team continued troubleshooting on the Stormwater Management system to determine why it does not appear to be working effectively for barium. A draft of a treatability study letter for barium stabilization was completed.

#### ***Interim Measure (IM) –***

Internal review of the draft IM Report was completed and comments were provide to the subcontractors who are writing that report.

***Public and Stakeholder Involvement***– No activities.

#### **Percentage of CMS Completed**

LANL estimates 88 % of the CMS has been completed to date. Note that this percentage does not reflect the deep and potential intermediate wells that will be drilled per the CMS plan addendum.

#### **Problems Encountered/Actions to Rectify Problems**

*General Problem (1)* The Cerro Grande fire has severely impacted the 260 RFI/CMS activities. These problems have been discussed in detail in previous monthly reports.

*Action to Rectify General Problem (1):* LANL will work closely with NMED through the HPT to mitigate the effects of the Cerro Grande fire. Effects of the fire on the monitoring data in Canon de Valle continue to be addressed.

#### ***CMS Hydrogeologic Investigations***

*Problem (1):* Questions relating to the quality of data from well R-25 remains a concern to the TA-16-260 team.

*Action to Rectify Problem (1):* LANL will evaluate the data from the quarterly sampling of the R-25 well to evaluate its reliability.

### ***CMS Bench and Pilot Studies***

*Problem (1):* The fact that the Stormwater Management unit does not appear to be removing barium is of concern,

*Action to Rectify Problem (1):* LANL will work with ITRD to determine if there are problems with the barium-specific resin and will potentially evaluate other barrier materials.

### ***IM***

None.

### **Key Personnel Issues**

None

### **Projected Work for May 2002**

#### ***RFI Report and CMS Plan***

- None

#### ***BMPs***

- Inspection of existing BMPs following significant precipitation events will continue.

#### ***CMS Hydrogeologic Investigations***

- Maintenance of autosamplers
- Checking for levels and presence of water in alluvial and deep wells.
- Sampling of flow-integrated autosamplers
- Continued precipitation monitoring and sampling for stable isotopes.
- Data analysis

- Completion of rough draft of CdV-R-37-2 Well Completion Report
- Review of data quality objectives for groundwater modeling
- Review of data quality objectives for drilling

#### ***Ecological Risk Pilot***

- Evaluation of data from ecotoxicity samples

#### ***CMS Bench and Pilot Studies***

- Evaluation of data from Stormwater units

#### ***IM***

- Data analysis and writing of IM Report

#### ***Public and Stakeholder Involvement***

A presentation will be made at the public meeting on May 8, 2002.